ARRI TECHNICAL NOTE P-1032

Optimizing 435X/A Speed/Shutter Ramps
November 8, 2004

Summary
This note describes the best methods for running speed/shutter ramps with the ARRIFLEX 435 Xtreme or 435 Advanced/FEM-2.

Some Terminology

What is a Speed Ramp?

A speed ramp is a controlled change of the camera's speed (fps) while the camera is running.

What is a Speed/Shutter Ramp?

A speed/shutter ramp is a speed ramp where the resulting change in exposure is compensated for by varying the open angle of the mirror shutter.

What is an Internal Ramp?

An internal ramp is a speed change that is stored in the camera's internal memory. Internal ramps can be created and sent to the 435 Xtreme and 435 Advanced/FEM-2 with the Remote Control Unit (RCU-1).

What is an External Ramp?

An external ramp is a speed change that is stored in an external camera controller like the Remote Control Unit (RCU-1) or Wireless Remote Control (WRC-1). To activate and execute an external ramp, the controller has to be connected to the camera either wired or wirelessly.

Speed/Shutter Ramps on the 435 Xtreme or 435 Advanced/FEM-2

There are various methods for performing speed/shutter ramps with the 435 Xtreme or 435 Advanced/FEM-2. Because the camera software as well as some accessories have been improved since they were first introduced, some of these methods yield better results than others.

The best speed/shutter ramps on a 435 Xtreme or 435 Advanced/FEM-2 can be achieved by using The WRC-1 either wirelessly or wired to the FEM-2. In that case the new ramp generator software that is part of the FEM-2 controls the ramp. Still acceptable is using an internal ramp with the RCU-1. All three methods are described below:

1. Speed/shutter Ramping with the Wireless Remote Control (WRC-1), Wired

Necessary equipment is a WRC-1, a WHA-2, a WHA-2 LCS Cable (LC-Z1, K4.41395.0 or LC M1, K4.41397.0), a 435 Xtreme or a 435 Advanced/FEM-2.

1.1 Mount the WRC-1 to the WHA-2 and connect both with the cable to the LCS socket on the FEM-2.

1.2 Be sure the WRC/CAM switch above the WRC-1 display is in the "WRC" position and the IRIS switch is in the "OFF" position.

1.3 Select on the WRC wheel (the left wheel) "ramp fps" and on the COMPENSATION wheel (the right wheel) the angle symbol.

1.4 Enter the desired speed/shutter ramp in the WRC-1 (see WRC Manual for help).

1.5 Push the RUN button on the WHA-2 to start the camera.

1.6 Push the RAMP button on WRC-1 to start the ramp.

2. Speed/shutter Ramping with the Wireless Remote Control (WRC-1), Wireless

Necessary equipment is a WRC-1, a WMU-3, a WBU-3, a URM-3, a 435 Xtreme or a 435 Advanced/FEM-2. Note: It is also possible to use the older WMU-1 or WMU-2.

2.1 Mount the URM-3 to the FEM-2 and select a channel on the FEM-2.
2.2 Connect the WRC-1 and WBU-3 to the WMU-3 and select the same channel.
2.3 Be sure the WRC/CAM switch above the WRC-1 display is in the "WRC" position and the IRIS switch is in the "OFF" position.
2.4 Select on the WRC wheel (the left wheel) “ramp fps” and on the COMPENSATION wheel (the right wheel) the angle symbol.
2.5 Enter the desired speed/shutter ramp in the WRC-1 (see WRC Manual for help).
2.6 Push the RUN button on the WMU-3 to start the camera.
2.7 Push the RAMP button on WRC-1 to start the ramp.

3. Running an Internal Speed/Shutter Ramp with the Remote Control Unit (RCU-1)

Necessary equipment is a RCU-1, a RCU-1 Cable KC 39-S and 435 Xtreme or a 435 Advanced/FEM-2.

3.1 Rotate the left wheel of the RCU-1 to "RCU".
3.2 Enter the desired speed/shutter ramp into the RCU (see RCU manual for details).
3.3 Rotate the left wheel of the RCU-1 to "CAM".
3.4 Push the RAMP button on the RCU-1 to activate the ramp.
3.5 Push the RUN button to start the camera.
3.6 Push the RAMP button on the RCU-1 to start the ramp.

Notes on running an internal speed/shutter ramp with the Remote Control Unit (RCU-1):

- Use RCU-1 with software 1.5 or later.
- It is very important that the left wheel of the RCU-1 is in the CAM position when you push the RAMP button, since otherwise you would execute an external ramp instead of an internal ramp.
- Note that the RCU-1 can send internal ramps only to the 435 Xtreme or 435 Advanced/FEM-2, not to the 435ES.
- Pushing the RUN button to stop the camera deactivates the ramp. If you want to run the same ramp again, you have the push the RAMP button once again before pushing the RUN button.
- It is also possible to send internal ramps to the camera by using the following discontinued products: Camera Control Unit (CCU-1), Laptop Camera Controller (LCC) or Ramp Preview Controller (RPC).

Other Methods

All other methods to perform a speed/shutter ramp on the 435 Xtreme or 435 Advanced/FEM-2 will not lead to results as good as with the three methods described above. These other methods include running a speed/shutter ramp using an external ramp with the RCU-1, using the WHA-1 to cable the WRC-1 to the camera and using the WRC-1 wirelessly with UMC-1 and URM-1 as the camera side radio.

For more information on this issue, please contact your local ARRI representative.
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